# Assignment 3 Documentation

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## Description

All classes within the assignment include a main method to be used for testing the features of each class by compiling and executing them individually. For all classes other than HospitalSystem each class will execute and print any resulting errors to the console. Executing HospitalSystem will prompt for user input through the console for interaction and testing.

## HospitalSystem Interaction

Interaction appears as follows...

```
Ward name:Example
First bed label:1
Last bed label:5
-System Initialized-
>2
Name:Test Patient
Health Number:123
>3
Name:Test Doctor
>4
Doctor:Test Doctor
Patient:123
>5
Available beds:
[1, 2, 3, 4]
>6
Patient:123
Bed:4
>9
=HOSPITAL SYSTEM=

Ward Example with capacity 5 has the following patients:
bed 1:
bed 2:
bed 3:
bed 4: Test Patient
bed 5:
Patients on record:
     Test Patient [123]
Doctors on record:
-Doctor-
Name: Test Doctor
Patients:
     Test Patient

>1
Shutting down...

Process finished with exit code 0
```

HospitalSystem has the following commands when the main method is called:

1. quit
2. add a new patient to the system
3. add a new doctor to the system
4. assign a doctor to a patient
5. display the empty beds of the ward
6. assign a patient a bed
7. release a patient
8. drop doctor-patient association
9. display current system state

Should an error occur from invalid user input the resulting exception will be printed to the console.

# Status

All classes are completed and tested. Surgeon class is currently unused by any other class in the project.

# Maintenance

The Doctor and Patient classes both contain each other in a hash map. The hashing method for the Patient class is dependent on its health number and Doctor class on its name string, so in order for each to function the name and numbers must be unique for each instance. HospitalSystem class acts as a management interface for the Ward class, as such an instance of Ward is initialized with HospitalSystem when constructed along with a hash map for Doctor and Patient classes. A complete UML graph of the class relationships is provided on the next page.

# A3's Class Diagram